

CONTRIBUTIONS TOWARD A BRYOFLORA OF NEVADA:  
BRYOPHYTES NEW FOR THE SILVER STATE, PART II

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ABSTRACT

Two hornworts, five liverworts, and 24 mosses are reported new for the state of Nevada. The phylum Anthocerotophyta as represented by the families Anthocerotaceae and Notothyladaceae, the liverwort families Antheliaceae, Cleveaceae, Fossombroniaceae, and Pseudolepicoleaceae, and the moss family Bruchiaceae are all new for the state. Genera new for Nevada include: *Anthelia*, *Anthoceros*, *Athalamia*, *Blepharostoma*, *Bruchia*, *Codriophorus*, *Conostomum*, *Ditrichum*, *Fossombronia*, *Gemmabryum*, *Phaeoceros*, *Ptychostomum*, and *Rosulabryum*. A new treatment of the widespread *Bryum caespiticium* Hedwig is adopted for North America, with the segregates *Bryum badium* (Bridel) W. P. Schimper and *Bryum kunzei* Hornschuch reported for the first time for North America.

Key Words: bryophytes, hornworts, liverworts, mosses, new records, bryogeography, Nevada.

This is the second installment in our ongoing study to document bryophytes (hornworts, liverworts and mosses) as new for the state of Nevada based on examination of specimens. An overview of the project and a map of Nevada are provided in Shevock et al. (2005). In this installment, we have focused on the review of Nevada specimens within the families Bryaceae and Leskeaceae. These families are currently being studied by the first author for treatments in the forthcoming bryophyte volumes of the Flora North America Project (BFNA). The genus *Bryum* s.l. is projected to be the largest genus of mosses in Nevada, currently represented by 26 species. Additional *Bryum* s.l. species are expected to be documented for Nevada with continued collection, and several species new to science, which will be published elsewhere, are also known from the state.

*Bryum* s.l. is a large (~500 species) worldwide genus that as traditionally described is polyphyletic. For the upcoming BFNA, *Bryum* Hedwig and related species will be segregated into a series of smaller more natural genera, based primarily on gametophyte characters, although some sporophyte characters are also important. The following genera are treated here: *Bryum* s.s., *Gemmabryum* Spence & Ramsay, *Ptychostomum* Hornschuch, and *Rosulabryum*

Spence (Spence 1996, 2005; Spence & Ramsay 2005). Two segregates out of the *Bryum caespiticium* Hedwig complex, *B. badium* and *B. kunzei*, are accepted here for the first time and are thus new for North America. Previous work documented 13 species of *Bryum* s.l. from Nevada (Lawton 1958).

During the 2005 field season, two hornworts were documented for Nevada. Prior to these collections, hornworts were presumed to be absent from the state due to a perception of a lack of suitable habitat. For these collections, we have followed the hornwort classification and nomenclature as proposed by Stotler & Crandall-Stotler (2005). Finding hornworts for the first time in Nevada indicates how much collection work remains to be done to complete basic inventories of biological diversity.

HORNWORTS [ANTHOCEROPHYTA]

*Anthoceros fusiformis* Austin [Anthoceroaceae]

**Humboldt Co.:** BLM Winnemucca District, Pine Forest Range, below Blue Lakes, 6 Aug 2005, *Shevock & Nachlinger 27531* (CAS, MO, NY, SIU, UC, UNLV, WTU) [determined by Bill Doyle]. On moist granitic soil along bank of stream in a meadow stringer. At nearly 8000 ft, we believe this occurrence is among the highest elevation documented for a hornwort in western North America.

***Phaeoceros carolinianus* (Michaux) Proskauer**  
[Notothyladaceae]

**Clark Co.:** BLM Red Rock Canyon National Conservation Area, Pine Creek, 4 Apr 2005, *Brinda* 69 (CAS, UNLV). On seep of stream bank. This material was examined by Bill Doyle and provisionally assigned to this species because the collection lacks mature spores. However, we feel fairly confident that this is indeed this species since *P. carolinianus* was recently discovered from another locality in the Mojave Desert within Death Valley National Park (Laeger 2005). No other *Phaeoceros* is documented from the Mojave Desert.

LIVERWORTS [MARCHANTIOPHYTA]

***Anthelia juratzkana* (Limpricht) Trevis** [Antheliaceae]

**Elko Co.:** Humboldt National Forest, East Humboldt Mts., East Humboldt Wilderness, cirque above Smith Lake, 29 Jul 2004, *Shevock* 25982 (CAS, MO, NY, SIU, UC, UNLV) [determined by Bill Doyle]. On moist soil at base of boulders.

***Athalamia hyalina* (Sommerfelt) S. Hattori**  
[Cleveaceae]

**Elko Co.,** Humboldt National Forest, Ruby Mts., Lamoille Canyon Scenic Area, Ruby Crest National Recreation Trail (043) between Liberty Pass and Lamoille Lake, 31 Jul 2004, *Shevock* 26049 (CAS, UC, UNLV) and trail to Dollar Lakes, 20 Jul 2002, *Shevock & Glazer* 22501 (CAS, UNLV) [determined by Bill Doyle]. On moist soil of intermittent rivulet from snowmelt.

***Blepharostoma trichophyllum* (Linneaus) Dumortier** [Pseudolepicoleaceae]

**Elko Co.:** Humboldt National Forest, Jarbidge Mts., Jarbidge Wilderness, Forest Trail 106 about 1 mi below Jarbidge Lake, 6 Aug 2004, *Shevock, Glazer, & Howell* 26129 (CAS, MO, UNLV) [determined by Bill Doyle]. On wet and shaded underhang bank of streamlet.

***Fossombronina* sp.** [Fossombronaceae]

Note: Since this specimen lacks sporophytes, naming it to the species level is problematic. Nonetheless, this plant is without doubt a *Fossombronina* which is a genus new for the Nevada bryoflora.

**Elko Co.:** Humboldt National Forest, East Humboldt Mts., East Humboldt Wilderness, cirque above Smith Lake, 29 Jul 2004, *Shevock* 25984a (CAS) [confirmed by Bill Doyle]. On moist soil wet from snowmelt.

***Mannia californica* (Gottsche) Wheeler** [Aytoniaceae]

**Clark Co.:** Spring Mts., BLM Red Rock Canyon National Conservation Area, White Rock Spring, 25 Mar 2005, *Stark & Brinda s.n.* (CAS, UNLV) [confirmed by Alan Whitemore] and Pine Creek Canyon, 4 Apr 2005, *Shevock, Brinda, & Stark* 26523 (CAS, UNLV); **Lincoln Co.:** South Pahroc Range, south side of Pahroc

Summit along highway 93, 3 Apr 2005, *Shevock & Brinda* 26494 (CAS, UNLV) [confirmed by Bill Doyle]. On soil at base of rock outcrops and ledges in partial shade.

MOSESSES [BRYOPHYTA]

***Bruchia bolanderi* Lesquereux** [Bruchiaceae]

**Washoe Co.:** Toiyabe National Forest, Carson Range, Sierra Nevada, Tahoe Meadows along Ophir Creek, 28 Jul 2004, *Shevock* 25973 (CAS, MO, UC, UNLV) and 29 Aug 2004, *Shevock, Ertter, & Matson* 26165 (CAS, KRAM, MO, NY, UBC, UNLV). On moist vertical clay walls of creek bank and on moist exposed soil in fen habitats.

***Bryum badium* (Bridel) W. P. Schimper** [Bryaceae]—see *Ptychostomum badium*

***Bryum bimum* (Schreber) Turner** [Bryaceae]—see *Ptychostomum bimum*

***Bryum elegans* Nees** [Bryaceae]—see *Rosulabryum elegans*

***Bryum flaccidum* Bridel** [Bryaceae]

**Clark Co.:** Toiyabe National Forest, Spring Mts., Kyle Canyon at Mary Jane Falls Trailhead, 19 Jun 1996, *Stark* 1359 (UNLV); **Douglas Co.:** Pine Nut Mts., canyon about 1 mi north of Jack Wright Summit off highway 208, 2 May 2003, *Shevock & Durham* 24042 (CAS, UNLV); **Elko Co.:** Humboldt National Forest, Jarbidge Mts., along Pine Creek near junction with Jarbidge River about 4 mi south of town of Jarbidge, 26 Aug 2002, *Shevock & Glazer* 22795 (CAS, UNLV); Humboldt National Forest, Ruby Mts., Harrison Pass Road above Harrison Pass Creek, 30 Jul 2004, *Shevock* 26029 (CAS, MO, NY, UNLV). On rock walls. Note: this species is a *Rosulabryum* and will be transferred at a future date.

***Bryum gemmiparum* De Notaris** [Bryaceae]

**Clark Co.:** Red Rock Canyon National Conservation Area, Spring Mts., Lower Pine Creek, 25 Mar 2000, *Spence* 5421 (CAS, UNLV).

***Bryum kunzei* Hornschuch** [Bryaceae]

**Clark Co.:** Toiyabe National Forest, Spring Mts., south end of Bristlecone Trail near ski lift, 12 Jun 1996, *Stark* 1275 (UNLV) and Foxtail Canyon near Sponge Springs, 27 Jun 1996, *Stark* 1414 (UNLV); **Elko Co.:** Humboldt National Forest, Ruby Mts., Harrison Pass Road above Harrison Pass Creek, 30 Jul 2004, *Shevock* 26027 (CAS, MO, NY, UNLV, WTU); **Eureka Co.:** Roberts Mts., Jackass Creek, 10 Jun 2003, *Nachlinger & Tielm* 2435 (CAS, MO, NY, UNLV, WTU); **Lander Co.:** Toiyabe National Forest, Toiyabe Caves, 16 mi east of highway 376, 30 May 2002, *Shevock & Glazer* 22361 (CAS, MO, NY, UNLV); **Nye Co.:** Grant Range, Scofield Canyon at east side of range, 4 Jul 2003, *Nachlinger & Taylor* 2548 (CAS, MO, NY, UNLV); **White Pine Co.:** Kern Mts., south of Moffit Flat and west of Blue Mass, 13 Sep 2002, *Nachlinger & Provencher* 2456a

(CAS, MO, NY, UNLV). On compacted soil. New for North America. Note: this species is a *Ptychostomum* and will be transferred at a future date.

*Bryum laevifilum* Syed [Bryaceae]—see *Rosulabryum laevifilum*

*Bryum lonchocaulon* C. Müller Hal. [Bryaceae]—see *Ptychostomum lonchocaulon*

*Bryum neodamense* Itzigsohn in C. Müller Hal. [Bryaceae]—see *Ptychostomum neodamense*

*Bryum radiculosum* Bridel [Bryaceae]—see *Gemmabryum radiculosum*

*Bryum subapiculatum* Hampe [Bryaceae]—see *Gemmabryum subapiculatum*

*Bryum tenuisetum* Limpricht [Bryaceae]—see *Gemmabryum tenuisetum*

*Bryum valparaisense* Thériot [Bryaceae]

**Clark Co.:** Toiyabe National Forest, Spring Mts., Spring Hill north of Charleston Peak Resort, 7 Jun 1939, *Alexander* 736 (UC). Note: this species is a *Gemmabryum* and will be transferred at a future date. Previous reports of *Bryum pyriferum* Crundwell & Whitehouse in North America can be referred to this species, which is Neotropical in distribution (Arts et al. 1995).

*Codriophorus acicularis* (Hedwig) Bednarek-Ochyra & Ochyra [Grimmiaceae]

**Washoe Co.:** Toiyabe National Forest, Carson Range, Sierra Nevada, Tahoe Meadows above Ophir Creek, 29 Aug 2004, *Shevock, Ertter, & Matson* 26158a (CAS, KRAM, UNLV) [determined by Dan Norris; confirmed by Halina Bednarek-Ochyra]. On rocks in channel of intermittent streamlet inundated during snowmelt. Note: The genus *Codriophorus* is one of three segregate genera recently separated from *Racomitrium* (Ochyra et al. 2003).

*Codriophorus depressus* (Lesquereux) Bednarek-Ochyra & Ochyra [Grimmiaceae]

**Washoe Co.:** Carson Range, Sierra Nevada, Lake Tahoe Basin Management Unit, 1.5 km north of Sand Harbor, 30 Apr 1980, *Lavin s.n.* (WTU) [determined by Halina Bednarek-Ochyra]. Note: This collection was the basis for *Racomitrium heterostichum*, a species newly reported for Nevada by (Lavin 1982). *Racomitrium heterostichum* can now be excluded from the Nevada bryoflora.

*Conostomum tetragonum* (Hedwig) Lindberg [Bartramiaceae]

**Elko Co.:** Humboldt National Forest, East Humboldt Mts., cirque above Smith Lake, 29 Jul 2004, *Shevock* 25978 (CAS, MO, UC, UNLV); Humboldt National Forest, Ruby Mts., Ruby Mountains Wilderness, between Lamoille Lake and Liberty Pass, 31 Jul 2004, *Shevock* 26048 (CAS, UNLV). Moist bare soil along rivulets and at base of boulders in alpine habitats.

*Ditrichum flexicaule* (Schwägrichen) Hampe [Ditrichaceae]

**Elko Co.:** Humboldt National Forest, Jarbidge Mts., Jarbidge River above Pine Creek Campground, 25 Aug 2002, *Shevock & Glazer* 22758 (CAS, MO, NY, UBC, UC, UNLV, WTU) [determined by Bruce Allen]. On rock wall.

*Fontinalis gigantea* Sullivant [Fontinalaceae]

**Elko Co.:** East Ruby Mts., Humboldt National Forest, Lizzies Basin below Hole in the Wall Mtn., Leach Creek, 30 Jul 2004, *Shevock* 26004 (CAS, KRAM, MO, NY, UBC, UC, WTU) [determined by Bruce Allen]. Attached to rocks and submerged in creek at lake outlet.

*Gemmabryum radiculosum* (Bridel) J.R. Spence & H.P. Ramsay [Bryaceae]

**Nye Co.:** Nevada Test Site, Frenchman Flat, Feb 2005, *Brinda* 128 (CAS, UNLV). On sandy soil.

*Gemmabryum subapiculatum* (Hampe) J.R. Spence & H.P. Ramsay [Bryaceae]

**White Pine Co.:** Humboldt National Forest, Snake Range, Lower Hendry's Creek, southeast of Mt. Moriah, 20 Sep 2002, *Nachlinger & Provencher* 2460 (CAS, MO, NY, UNLV).

*Gemmabryum tenuisetum* (Limpricht) J.R. Spence & H.P. Ramsay [Bryaceae]

**Clark Co.:** Virgin Mts., Lower Cabin Canyon, 15 Nov 2002, *Shevock, Glazer, Spence, & Nelson* 23641 CAS, UNLV).

*Grimmia hamulosa* Lesquereux [Grimmiaceae]

**Elko Co.:** Humboldt National Forest, Jarbidge Mts., Jarbidge River near Buster Campground, 25 Aug 2002, *Shevock & Glazer* 22736 (CAS, MA, MO, NY, UC, UNLV). **Washoe Co.:** Toiyabe National Forest, Carson Range, northern Sierra Nevada, slopes above Ophir Creek near Upper Price Lake, 29 Aug 2004, *Shevock & Matson* 26162 (CAS, UNLV). On rock slabs, and sheet drainage areas seasonally moist generally from snowmelt.

*Lescuraea saviana* (De Notaris) E. Lawton [Leskeaceae]

**Elko Co.:** Humboldt National Forest, Ruby Mts., Harrison Pass Road above Harrison Pass Creek, 30 Jul 2004, *Shevock* 26022 (CAS, MO, NY, UNLV).

*Lescuraea saxicola* (W. P. Schimper in Bruch & W. P. Schimper) Molendo in Lorentz [Leskeaceae]

**White Pine Co.:** Great Basin National Park, Snake Range, cliffs above Teresa Lake on trail to Wheeler Peak, 2 Oct 1984, *Norris* 72391 (CAS, UC) [determined by Dan Norris; confirmed by John Spence]. On rock walls and boulders.

*Pohlia obtusifolia* (Bridel) L. Koch [Mniaceae]

**Elko Co.:** Humboldt National Forest, Ruby Mts., Lamoille Canyon Scenic Area, Ruby Crest National Recreation Trail (043) between Liberty Pass and Lamoille Lake, 31 Jul 2004, *Shevock* 26053 (CAS, DUKE, UNLV) [determined by Jon Shaw]. On moist soil and gravels along intermittent rivulet from snowmelt.

*Ptychostomum badium* (Bridel) J. R. Spence [Bryaceae]

**White Pine Co.:** Kern Mts., northwest side and south of Moffit Flat west of Blue Mass, 13 Sep 2002, *Nachlinger & Provencher 2456b* (CAS, UNLV). New for North America.

*Ptychostomum binum* (Schreber) J. R. Spence [Bryaceae]

**Lander Co.:** Toiyabe Range, Toiyabe National Forest, along forest road 002, 3.5 mi above Kingston Guard Station, 30 May 2002, *Shevock & Glazer 22346* (CAS, MO, NY, UNLV); **Nye Co.:** Quinn Canyon Range, Little Cherry Creek about 2 mi northwest of Adaven, 3 Jul 2003, *Nachlinger & Taylor 2545* (CAS, NY, UNLV).

*Ptychostomum lonchocaulon* (C. Müller Hal.) J. R. Spence [Bryaceae]

**Clark Co.:** Toiyabe National Forest, Spring Mts., Kyle Canyon at Big Falls Trail, 19 Jun 1996, *Stark 1387 & 1388* (UNLV); **Elko Co.:** Knoll Mtn., Hice Spring, 11 Jun 2003, *Nachlinger & Tielm 2537* (CAS, UNLV); **White Pine Co.:** Humboldt National Forest, Snake Range, Upper Hendry's Creek southeast of Mt. Moriah, 22 Sep 2002, *Nachlinger & Provencher 2463* (CAS, NY, UNLV).

*Ptychostomum neodamense* (Itzigsohn in C. Müller Hal.) J. R. Spence [Bryaceae]

**Clark Co.:** Red Rock Canyon National Conservation Area, Spring Mts., First Creek, 26 Mar 2000, *Manusco 2047* (UNLV).

*Racomitrium aciculare* Hedwig [Grimmiaceae]—see *Codriophorus aciculare*

*Racomitrium depressum* Lesquereux [Grimmiaceae]—see *Codriophorus depressus*

*Rosulabryum elegans* (Nees in Bridel) Ochyra [Bryaceae]

**Nye Co.:** Phinney Canyon NE of Wahguyhe Peak, Grapevine Mts., Death Valley National Park, 18 Jan 2003, *Shevock, York, & Davis 23702* (CAS, UNLV). On rock in dry stream channel.

*Rosulabryum laevifilum* (Syed) Ochyra [Bryaceae]

**Elko Co.:** Humboldt National Forest, Jarbidge Mts., Jarbidge Wilderness, Forest Trail 106 along Jarbidge River near junction of trail to Jarbidge Lake and Marys River, 6 Aug 2004, *Shevock, Glazer, & Howell 26146* (CAS, MO, NY, UNLV, WTU); **Nye Co.:** Death Valley National Park, Grapevine Mts., above Strozzi Ranch Site north of Wahguyhe Peak, 11 Jan 2002, *Shevock & York 21694* (CAS, UNLV). On soil and litter.

*Tortula guepinii* (Bruch & W. P. Schimper) Brotherus [Pottiaceae]

**Clark Co.:** Eldorado Mts., Keyhole Canyon Archeological Site, north base of Keyhole Can-

yon, 8 Apr 1994, *Stark 205* (UNLV) [determined by Richard Zander]; Lake Mead National Recreation Area, Newberry Mts., Pipe Spring Canyon, vicinity of Pipe Spring, 4 Feb 1994, *Stark 98b* (UNLV). On crevice of north-facing boulders.

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